

DEPARTMENT OF TRANSPORTATION**DIVISION OF ENGINEERING SERVICES**

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 69.28**WELDING INSPECTION REPORT****Resident Engineer:** Pursell, Gary**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-000865**Date Inspected:** 13-Nov-2007**Project Name:** SAS Superstructure**OSM Arrival Time:** 1430**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 2300**Contractor:** Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island **Location:** Shanghai, China**CWI Name:** Fu Guogong & Li Zhijiang**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** OBG - Closed Rib Trials & Mock Up**Summary of Items Observed:**

Orthotropic Box Girder (OBG):

The Caltrans Quality Assurance (QA) Inspector Charlie Franco was present at the time requested to randomly observe welding and associated operations being performed for the OBG Closed Rib Mock Up.

Bay 1:

The QA Inspector randomly observed ZPMC welders Xiang Jie Weld Joint (WJ) 3, Gao Xingdong WJ 4, Chen Jie WJ 7 and Song Yinsu WJ 8, utilizing gantry mounted semiautomatic welding apparatus with the Submerged Arc Welding (SAW) Process, to weld closed ribs piece marks U-02 (WJ's 3/4) and U-04 (WJ's 7/8) to the 12 meter OBG Closed Rib Mock Up. ZPMC approved Weld Procedure Specification (WPS) WPS-B-T-2342-U1 was being utilized for the welding of the closed ribs to the mock up deck plate. The QA Inspector randomly observed the welding being interrupted twice; once at 1860 millimeters (mm) into the run and again at 10500 mm into the run. The QA Inspector randomly observed that the welding apparatus on closed rib U-04 at WJ 7, appeared to drift upward onto the rib in both instances. The QA Inspector also observed several areas of non fusion on closed rib U-02 in WJ 4, which had been welded on the previous shift. The QA Inspector located and marked a total of 7 areas of non fusion in WJ 4 that started at 8885 mm into the run and ended at 10220 mm into the run. The areas of non fusion went from a minimum of 15 mm to a maximum of 70 mm. The QA Inspector observed ZPMC CWI Fu Guogong and several other ZPMC Quality Control (QC) Personnel monitoring weld parameters. The QA Inspector also performed random verification of the weld parameters and documented the averaged parameters as follows: welding amperage 680 amps, welding voltage 25.33 volts for Mr. Xiang, 678 amps, 25.42 volts for Mr.

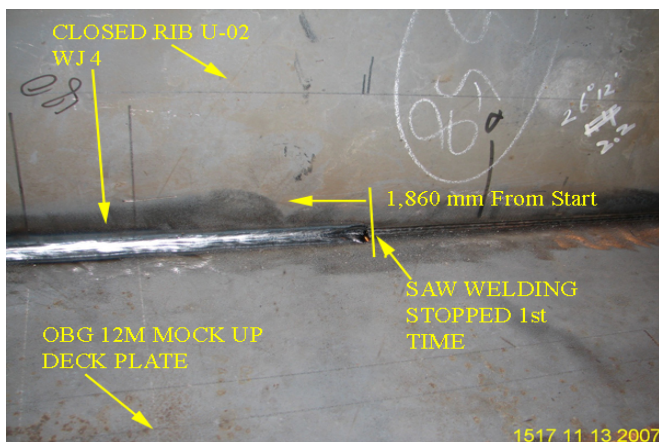
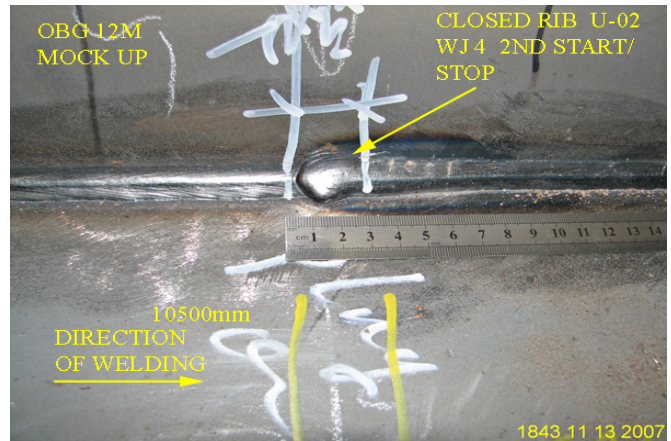
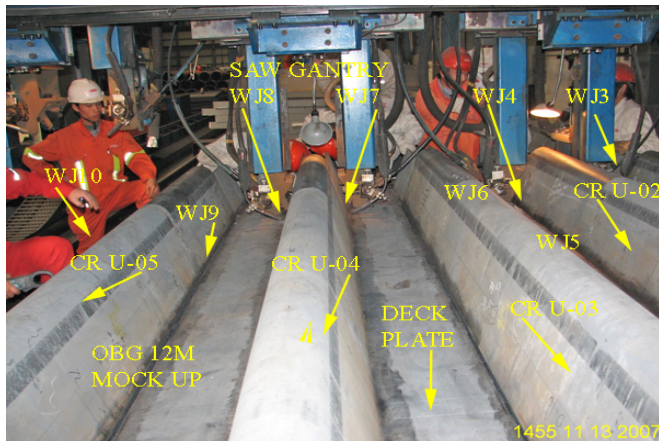
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Gao, 680 amps, 25.75 volts for Mr. Chen and 679 amps, 25.48 volts for Mr. Song. The average travel speed for all 4 welders was 514 millimeters per minute. Weld parameters appeared to comply with the above approved ZPMC WPS. The attached photographs provide additional detail.

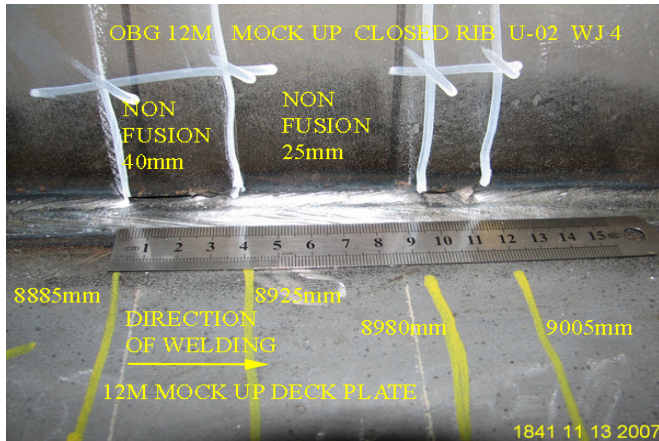
Bay 7:

The QA Inspector randomly observed ZPMC welder Wu Wanyong ID Number 050242, utilizing the Flux Cored Arc Welding (FCAW) Process with ZPMC approved Weld Procedure Specification (WPS) WPS-B-T-2231-B-U2-F-1, to weld the cover pass on WJ number FB003-E022-006 on diaphragms for the OBG. The QA Inspector observed ZPMC CWI Li Zhijiang monitoring weld parameters. The QA Inspector also performed random verification of the weld parameters and documented them as follows: welding amperage 284 amps, welding voltage 31 volts with a travel speed of 592 millimeters per minute. Weld parameters appeared to comply with the above approved ZPMC WPS. The attached photograph provides additional detail.



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Summary of Conversations:

ZPMC QA Representative Lay Tao informed the QA Inspector, that the gantry mounted SAW welding apparatus being used on closed rib U-04 at WJ 7, rode up onto the closed rib twice and the welding had to be interrupted and restarted twice.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Mazen Wahbeh, (818) 292-0659, who represents the Office of Structural Materials for your project.

Inspected By: Franco,Charlie

Quality Assurance Inspector

Reviewed By: Cochran,Jim

QA Reviewer